

The Doctrine of Equivalents: Where It Has Been, Where It Is Now

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g) Introduction

The claims of an issued patent are a description of the metes and bounds of the boundaries of the invention. They represent the agreement between the applicant and the Patent and Trademark Office as to the extent of the exclusive property rights granted to the inventor in his/her invention while serving to provide the public the precise basis on which to determine which activities or products do or do not infringe the patent. Thus, the claims of a patent serve two purposes: one, to set out the scope of rights granted to the inventor and two, to notify the public of the limits on those rights.

In the early days of the U. S. patent system when claims were not required to be a part of a patent application, courts considered the essential nature of an invention to decide if it was infringed by an accused device or process. If differences were deemed to be minor, then the accused device or process was declared to be infringing. This was totally unsatisfactory to competitors who never knew the limits around which to design their own products, thereby avoid infringement. Later, claims were required to be a part of a patent application to clearly point out the invention claimed by the inventor and thus fulfill the notice-to-public functionⁱⁱ. However, interpreting the scope of the invention by the literal language of the claims was revealed to be an unsatisfactory task. Human language being as imprecise as it is, it frequently failed to describe and claim the full extent of the inventor's contribution to the advancement of useful arts.

Therefore, relying on the literal language of the claims often deprived the inventor of entitlement to his full invention and enabled competitors to make insignificant modifications in a product to remove the product outside the stated claims to avoid infringement while retaining the benefits of the invention. Such literal construction of the claims gave form primacy over substance.

To reach a compromise between the two conflicting goals of the patent system, the doctrine of equivalents was developed by the courts. The motivation behind the doctrine is to give protection to the inventor when the accused device or process does not fall within the literal scope of a claim but which, nonetheless, meets each limitation of the claim by equivalence. The determination of what is considered “equivalent” is made based on the particular circumstances of the case. “Equivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum. It does not require complete identity for every purpose and in every respect.”ⁱⁱⁱ Succinctly put, the doctrine is intended to prevent a fraud from being practiced on a patent.^{iv}

But this fraud can occur in favor of the patentee as well. When applied, the doctrine of equivalents enlarges the scope of protection afforded to the patentee beyond the literal language of the claims. In extreme cases, the enlargement may occur to such an extent as to eliminate, for all practical purposes, some limits placed on the invention by the claims. Such a rampant application of the doctrine is prevented by another judicially-created doctrine, that of prosecution history estoppel, also known as file-wrapper estoppel. Depending on the transactions between the applicant and the Patent and Trademark Office during the prosecution of the patent application, prosecution history estoppel may bar the application of the doctrine of equivalents to the issued patent. The difficult task is to strike a balance between the doctrines of equivalents and prosecution history estoppel so that the inventor is afforded due protection of his rights while competition and further development of useful arts are not stifled.

However, decisions in recent cases, most notably *Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*^v, have greatly eroded the doctrine of equivalents by applying the prosecution history estoppel ruthlessly to any element of a claim that was amended during the prosecution for reasons relating to patentability or for any unexplained reasons. This has a tremendous effect of narrowing the scope of patent protection and causing shifts in the prosecution strategies. In addition, the court decisions invite a reasonable prosecutor to ask the obvious question: For what reason, other than patentability-related reasons, would one normally amend a claim during prosecution?

II. Statutory Basis

- a) U. S. Constitution, Article 1, section 8, clause 8:

To promote the Progress of Science and useful Arts^{vi}, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries---

- b) The Patent Act of 1790, the first Patent Act^{vii} required a written description and a drawing of the invention before a patent would be issued. There was no requirement for “claims.”

- c) The Patent Act of 1836, which is considered to be the basis of the modern patent system, required for the first time that applicants “particularly specify and point out the part, improvement, or combination which he claims as his own invention or discovery.”^{viii} (emphasis added).

- d) The Patent Act of 1870 required a description and claims to point out particularly and distinctly claim the applicant’s invention.

- e) 1952 Patent Act, codified as 35 U. S. C. 100 et seq., requires the applicant to disclose the best mode contemplated by the inventor of carrying out his invention and to point out particularly and claim distinctly the subject matter which he regards as his invention.^{ix} The Act further allows claiming an

element of an invention in terms of the function performed by the element.

More specifically, 35 U. S. C. 112, paragraph 6 states:

*An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and **equivalents** thereof.*

III. History as Revealed in Notable Decisions

a) *Ross Winans, Plaintiff in Error v. Adam, Edward, and Talbot Denmead*, 56 U. S. 330; 14 L. Ed. 717; 15 HOW 330 (1853).

This pre-Civil War case is generally considered to be the progenitor of the doctrine of equivalents. The Winans patent was for an improvement in cars for transportation of coal. The Winans car took the form of a frustum of a cone, which allowed it to carry far more coal in proportion to its own weight than any other car in previous use while preserving its conical shape during the transportation. His claim was

making the body of a car --- in the form of a frustum of a cone --- whereby the force exerted by the weight of the load presses equally in all directions and does not tend to change the form thereof, so that every part resists its equal proportion---.^x

Defendants' coal-carrying car, constructed after the inspection of Winans' car, was in the form of an octagon. Except for the difference in their shape (i.e. Winans' was cylindrical and conical whereas Denmead's was octagonal pyramidal), the parties' cars were made of the same material and same thickness and accomplished the same purpose using the same physical principles. Winans brought a suit for patent infringement. The Court articulated four questions to be answered before determination could be made whether his patent was indeed infringed by the Defendants:

a. What is the device that embodies the patentee's invention?

- b. What mode of operation is introduced and employed by this device?
- c. What result is obtained?
- d. Does the claim cover the described mode of operation by which the result is obtained?^{xi}

Upon analysis of the description of Winan's invention as contained in the patent, the Court concluded that the substance of the invention was a new mode of operation (substantially equal pressure in all directions exerted by the entire load of coal) that yielded a new and useful result (carriage of greater quantity of coal than was feasible before) and that this new mode of operation was achieved by the conical shape of the coal-carrying car. The Court opined that the new mode of operation, not the conical form, was where the invention resided. Hence it was this new mode of operation that was protected by the patent in question.^{xii}

Construing the claiming language of the patent liberally in the interest of promoting the progress of the useful arts, the Court held that the conical shape was but one, perhaps the best, of the many embodiments of the protected mode of operation. Defendants' octagonal car accomplished substantially the same result in substantially the same manner. The inventor, being entitled to protect his entire invention, was assumed to have intended to claim all other forms that embodied his invention, unless there was evidence that he intended to disclaim some of those forms.^{xiii} Otherwise, in the opinion of the Court, an unscrupulous person could practice a patented invention with impudence by merely engaging a form that was not expressly claimed by the patent. Such easy copying, if considered to be non-infringing, would render the property of inventors worthless. The question as to whether the patent claim covered the described mode of operation by which the result was obtained was deemed fit for jury consideration.

The dissenting opinion, however, lamented that the enlargement of the scope of the patent protection beyond the limits of the claim was contrary to the Congressional intent in passing the 1836 Patent Act and detrimental to the advancement in the mechanical industry of the country,^{xiv} presumably by

discouraging investment and ingenuity in developing modifications and improvements.

- b) *General Electric Company v. Wabash Appliance Corporation*,
304 U. S. 363; 82 L. Ed. 1402 (1938).

This case invalidated product claims describing the invention purely in terms of function as unduly broadening the invention. The G. E. patent in question related to an improvement in tungsten filament for incandescent lamps, the improvement being aimed toward substantially decreasing “sagging” and “offsetting.” The patent contained product claims of which the following claim 25 is representative:

- c) *A filament for electric incandescent lamps or other devices, composed substantially of tungsten and made up mainly of a number of comparatively large grains of such size and contour as to prevent substantial sagging and offsetting during a normal or commercially useful life for such a lamp or other device.*

The Court declared such a claim “invalid on its face”^{xv} for its failure to make a sufficiently definite disclosure in compliance with the requirements of the then governing statute^{xvi} and for failing to particularly point out and distinctly claim the part or improvement which the inventor considered to be his own invention. A patent claim that did not contain any structural definition of the invention such as the grain’s size or contour, but described it only in terms of the function was deemed to fail for indefiniteness. If allowed to stand, it would extend the patent monopoly beyond the scope of the actual invention. Such a claim did not describe the limits of the monopoly asserted by it. With no limits clearly set forth, the Court worried that others’ inventiveness would be discouraged and the subject matter to be dedicated to the public upon expiration of the patent could not be determined with any certainty.^{xvii}

c) *Halliburton Oil Well Cementing Company v. Cranford P. Walker*,
329 U. S. 1; 91 L. Ed. 3 (1946).

Walker's patent was for a combination of old elements, improving upon a pre-existing machine by adding another element. The pre-existing machine was an apparatus for determining the distance between the top of an oil well and the non-flowing fluid surface by measuring the time required for pressure waves to move to and back from the fluid surface of an oil well. Walker's addition was a mechanical acoustical resonator that functioned as a sound filter to make the shoulder echo waves detected by the pre-existing apparatus more prominent on the graph and easier to count.

The contested claims of the Walker patent claimed the invention using the term "means" followed by a recital of function. These claims did not describe the physical structure of the acoustical resonator, its physical relation to the elements of the pre-existing apparatus or how it operates with the pre-existing apparatus to result in a new machine, for the Court opined that the term "machine" included a combination.^{xviii} Citing *Holland Furniture Co. v. Perkins Glue Co.*^{xix} and *General Electric Co. v. Wabash Appliance Corp.*, *supra*, the Court declared such claims to be invalid and in violation of the statutory requirement for clear description of product claims and claiming the invention with particularity, i.e. the claims failed to describe adequately the structure, mode and operation of the parts in the combination.^{xx} The Court opined the contested Walker claims were ambiguous and overly broad as to encompass the use of all devices now or yet-to-be-known which could accent waves. The claims provided no basis for determining what fell outside the claimed territory that included equivalents of the element added by Walker. These claims utterly failed their public-notice function and could not be allowed to stand. 35 U. S. C. section 112, paragraph 6 was enacted to reverse this ruling.^{xxi}

The Patent Act of 1952 containing a provision explicitly authorizing claims to be drafted in terms of the function performed by the invented element and

mandating construction of such claims to include equivalents of the element described in the specification,^{xxii} was a response to the *Halliburton* decision and indicates Congressional approval of the doctrine of equivalents.

d) *Graver Tank & Manufacturing Company, Inc. v. Linde Air Products Co.*
339 U. S. 605; 94 L. Ed. 1097 (1950).

This case looms large in the development of the doctrine of equivalents and in favor of it. At issue was whether four valid claims that specified magnesium calcium silicate in a welding flux were infringed by an accused flux that used manganese silicate, instead. It was clear that the accused flux did not fall within the literal description of the claims. The Court found, however, over a vigorous dissent, that the change in the accused flux was colorable only and that the doctrine of equivalents must apply in this case.

It is precisely when an accused device or composition falls outside the literal language of the claim that the doctrine of equivalents is considered in order to assure that the inventor is given the full range of protection afforded him by the claims. Otherwise, a copyist can make an insignificant change in one or more of the components and escape the reach of the law while fully enjoying the benefits of the invention. This would put form supreme over substance and render patentee's protection hollow and meaningless.

The Court contemplated the history of the doctrine of equivalents and its underlying equitable basis. It stated "if two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same, even though they differ in name, form, or shape."^{xxiii} The principle was held applicable to chemical compositions as well as to mechanical devices. The Court extolled the wholesome virtue of the doctrine by saying how, in suitable cases, the doctrine can be used to defeat a patentee's claims of infringement. For instance, if an accused device or composition is so far changed that it achieves substantially the same result but in a significantly different way, then there is no

infringement even if the device or composition fall within the literal language of patentee's claims.

The actual determination of equivalency was deemed to be a question of fact for the jury which would consider several factors including the prior art, the purpose for which a component or ingredient is used in the patent, the function served by the component or ingredient and whether the substitution was within the ken of a person who was reasonably skilled in the art to which the patent pertains.^{xxiv}

e) *Pennwalt Corporation v. Durand-Wayland, Inc.*, 833 F. 2d 931 (1987).

Pennwalt had a patent on an invention for rapidly sorting fruit by color and weight. The claims at issue described the invention in means-plus-function language. Even though Pennwalt claimed that Durand's devices literally infringed its patent by performing sorting function, the Federal Circuit Court of Appeals found no literal infringement because certain functions that were recited in the Pennwalt claims were missing in the accused devices.

The Court of Appeals held that it was proper to look to the specifications for the description of the structure, material or acts performing the functions set forth in the claims to determine if the accused devices performed substantially similar functions using substantially the same structure, material or acts. It approved of the element-by-element comparison, done by the trial court, between the claimed functions and functions performed by the accused devices to see if each and every functional limitation was met by an equivalent function and finding no infringement by equivalency if fewer than all functional limitations were met. (The dissent strongly opposed this element-by-element comparison, insisting that determination of equivalency should be based on the invention as a whole.) One critical element of Pennwalt claims was a position-indicating means which limitation was added during the prosecution of the patent to render the invention patentable. The accused devices did not include any means for indicating the

position of the sorted objects. The Court said that since the position-indicating means was added as a limitation during the prosecution, Pennwalt could not later claim infringement by a device that did not include that limitation. To agree with Pennwalt would be tantamount to voiding the position-indicating means limitation and allowing Pennwalt to recapture subject matter given up during prosecution in exchange for patent protection.^{xxv} Thus earnestly began the erosion of the doctrine of equivalents by prosecution history estoppel.

IV. Current State – The Limiting Effect of Prosecution History Estoppel

d) *Warner-Jenkinson Company v. Hilton Davis Chemical Co.*,
117 S. Ct. 1040 (1997).

The dispute was between Hilton-Davis, a dye-manufacturing company that had a patent for dye purification process operating at a pH level approximately 6.0 to 9.0 and Warner-Jenkinson that used another dye purification process operating at a pH level of 5.0. The pH level range was added to Hilton-Davis claim during prosecution to overcome prior art covering a purification process operating at a pH above 9.0. No reason was evident for the addition of the lower pH limit.

The Court's opinion supported the majority holding of the Pennwalt decision that the doctrine of equivalents must be applied to the individual elements of the claim, not to the invention as a whole. This was viewed as a workable reconciliation between the two potentially conflicting aims of affording the inventor the full protection of his rights in his invention and protection of the public's interest in preserving the limitations placed on the scope of the inventor's claims.^{xxvi} Each element contained in a patent claim is deemed to be material to defining the invention, therefore element-by-element application of the doctrine of equivalents preserves the meaning of each of a claim's elements while avoiding the enlargement of the patent's scope and thereby causing the failure of their public notice function. Thus, if a patent claim is amended during prosecution to

overcome prior art or otherwise meet statutory requirements for patentability, then the amended element loses all equivalents by the application of the prosecution history estoppel. Usually, patentability-related amendments made during prosecution have the effect of narrowing the scope of the protection sought by the claim containing the amendments. Prosecution history estoppel bars the recapturing of any part of the patent's subject matter thusly given up during prosecution to narrow the scope sufficiently to render the claims patentable. If the patentee demonstrates that the amendment was unrelated to patentability, then the court must yet decide whether the reason given for the amendment is sufficient to overcome prosecution history estoppel so as to allow the application of the doctrine of equivalents to the amended claim element.

The burden is on the patentee to prove that an amendment was not related to patentability. Any unexplained amendment is assumed to have been made for reasons related to patentability.

The Court declared the doctrine of equivalents alive and well, with the proviso that prosecution history estoppel applies to bar equivalents of the elements that were added as a limitation during prosecution for reasons related to patentability. The estoppel was held applicable also to amendments for which there is no reason evident from the file or forthcoming from the patentee.

e) *Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*,

234 F. 3d 558; 56 U. S. P. Q. 2d (BNA) 1865; 2000 U. S. App. LEXIS 29979

This landmark case, decided on November 29, 2000, severely tightened the grip of the prosecution history estoppel on the doctrine of equivalents.

Festo owned two patents (the "Stoll" patent and the "Carroll" patent) directed toward magnetically coupled rodless cylinders in which the claim elements involved in the infringement suit had been added during prosecution of one patent and re-examination of the other by amendments designed to narrow the scope of the claims.

On re-hearing the case *en banc* on remand from the U. S. Supreme Court, the U. S. Court of Appeals for the Federal Circuit asked four dispositive questions which, along with their answers, are briefly set out below:

- f) For the purposes of determining whether an amendment to a claim creates prosecution history estoppel, does the term “a substantial reason related to patentability,” as pronounced in *Warner-Jenkinson*, cover only those amendments made to overcome prior art under 35 U. S. C. 102 and 103 or any reason whatsoever affecting the issuance of a patent?

Holding: “Substantial reason related to patentability” is not limited to overcoming prior art under 35 U. S. C. 102 and 103 but also extends to any other reasons for meeting the statutory requirement for a patent. Thus any amendment narrowing the scope of a claim for any reason related to patentability invokes prosecution history estoppel as to the amended element.

- g) Under *Warner-Jenkinson*, does a “voluntary” amendment give rise to prosecution history estoppel?

Holding: Yes. No exception is made for “voluntary” amendment.

- h) If a claim amendment invokes prosecution history estoppel, what range of equivalents is available under the doctrine of equivalents for amended claim element?

Holding: No range of equivalents is available for the amended claim element.

- i) When no reason is given for the amendment, what range of equivalents?

Holding: Unexplained amendment also has no range of equivalents.

The patent-holder has the burden of establishing the reasons for the amendment. Silence is definitely not golden when trying to establish that reasons for amendments were not related to patentability.

c) *Pioneer Magnetics, Inc. v. Micro Linear Corporation,*

2001 U. S. App. LEXIS 846 (January 23, 2001).

Pioneer Magnetics has a patent containing claims directed to circuitry suitable for receiving various levels of input voltage and, in response, producing a steady electrical current for another circuit. All four claims are combination claims and resulted from amending or canceling originally-filed claims during prosecution to overcome their initial rejections based on anticipation by prior art or indefiniteness. One of the claim elements involved a “multiplier” which, during prosecution, was amended to be a “switching analog multiplier” having the effect of narrowing the literal scope of the claim. Pioneer patent attorney who prosecuted the patent application declared that this particular amendment was made in inadvertence, not driven by any reasons related to patentability of the claim. Pioneer also alleged that prosecution history estoppel should not apply because the amendment was made voluntarily.

The court followed the rulings of *Warner-Jenkinson* and *Festo* to hold that any claim limitation added during prosecution for reasons related to patentability or for unexplained reasons invokes the prosecution history estoppel to bar the application of the doctrine of equivalents as to that limiting element. In other words, no legally-recognized equivalents exist for that amended claim element against which the patentee can claim infringement by equivalence.

To ascertain the prosecution history, the court considered only the record as revealed by the public record contained in the file wrapper and concluded that the prosecution history indicated that the amendment in question was due to issues of patentability.^{xxvii} Claims of inadvertence and voluntariness were dismissed as immaterial and not supported by the file wrapper.

j) *Litton Systems, Inc. v. Honeywell Inc.*,

2001 U. S. App. LEXIS 1529 (Feb 5, 2001).

Litton’s patent taught a process for making multiple layer optical films using

an ion beam. During re-issue proceedings, Litton narrowed the claims to limit the ion beam source to be only the Kaufman-type ion beam guns.

Since none of the accused methods utilized a “Kaufman-type ion beam source,” there was no literal infringement of the Litton patent. Further, the U. S. Court of Appeals for the Federal Circuit relied on the “complete bar rule” in *Festo* to declare “Litton is estopped from claiming any equivalents to the ‘Kaufman-type ion beam gun’ limitation in the disputed claims.”^{xxviii} (emphasis supplied.)

V. Conclusion

The latest in the string of cases to follow the *Festo* ruling is *Control Resources Inc. v. Delta Electronics Inc.* (D. Mass., No. 99-11892-WGY, 3/30/01). In it, the U. S. District Court for the District of Massachusetts held that an amendment made during prosecution to narrow the scope of the invention for reasons of patentability completely bars a finding of infringement under the doctrine of equivalents as to the amended element. This result holds even if there may be doubts as to whether the entire range of equivalents was surrendered during the prosecution.

Clearly, the days of liberal application of the doctrine of equivalents as under *Graver Tank* are long gone. Even the flexible bar approach of *Hughes Aircraft Co. v. United States*^{xxix} is done away with by *Festo* which declared it “unworkable.” The flexible bar approach allowed application of the doctrine of equivalents even after prosecution history estoppel was invoked against an amended claim element; the estoppel merely narrowed the available range of equivalence. *Festo* said that the flexible bar could not be relied upon to determine with certainty, before the appellate decision, the scope of subject matter given up by the amendment during prosecution. So, now a complete bar approach rules the day.

The doctrine of equivalents has been progressively narrowed over the years until recently, in *Festo* and subsequent cases, it has become little more than a literal infringement in sheep’s clothing. The all-elements rule, in combination with

the complete bar to applying the doctrine of equivalents raised by the prosecution history estoppel means that there is no infringement by equivalence of any claim that contains an amended element. Needless to say, unless an accused device or process employs all components or steps that are exactly the same as those of a patented claim, there is no literal infringement. As Mr. Justice Jackson stated, in delivering the majority opinion in *Graver Tank*, “[O]utright and forthright duplication is a dull and very rare type of infringement.”^{xxx}

While greatly reducing patent protection afforded by the doctrine of equivalents, prosecution history estoppel has much enhanced the public notice function of patent claims. All that one has to do successfully to design around a patented device to avoid infringement is study the prosecution history of the patent and determine which elements have been amended during the prosecution, then substitute other elements (even ones having equivalent functions) for those amended elements.

The recent pre-eminence of prosecution history estoppel will certainly mean higher costs of patent prosecution, if indeed an inventor still decides in favor of a patent rather than a trade secret. Significant changes in prosecution strategies are likely to follow. Under them, initial claims are bound to be more numerous and time-consuming to draft than before as well as narrower in scope. Patent prosecutors should traverse and argue Examiner’s rejections while avoiding amending the claims whenever possible and, when deemed advisable, make appeals from Examiner’s rejections. All of these redound to the detriment of inventors due to increased costs in terms of expenses and time, especially the individual and small-entity inventor.

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ⁱⁱ The Patent Act of 1870.

ⁱⁱⁱ *Graver Tank & Manufacturing Company, Inc. v. Linde Air Products Company*, 339 U. S. 605, 608 (1950).

^{iv} *Id.* at 608.

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- ^v 234 F. 3d 558 (2000).
- ^{vi} According to Professor Paul Goldstein in *Copyright, Patent, Trademark and Related State Doctrines, Cases and Materials on the Law of Intellectual Property*-Revised Third Edition, (The Foundation Press, Inc., 1993) at page 20, study of the colonial usage and syntax indicates that in speaking of “Science” and “useful Arts” in clause 8, the framers of the Constitution meant the works of authors and inventors, respectively.
- ^{vii} The first Patent Act was administered by a commission headed by the Secretary of State, Thomas Jefferson, who also served as the first patent examiner.
- ^{viii} Patent Act of 1836, section 6.
- ^{ix} 35 U. S. C. 112.
- ^x *Ross Winans v. Denmead*, 14 L. Ed. 717 (1853).
- ^{xi} *Id.* at 720.
- ^{xii} *Id.* at 721.
- ^{xiii} *Id.* at 722.
- ^{xiv} *Id.* at 724.
- ^{xv} *General Electric* at 368.
- ^{xvi} Rev. Stat. Section 4888, 35 U. S. C. A. section 33.
- ^{xvii} *General Electric* at 369.
- ^{xviii} *Halliburton Oil Well Cementing Company v. Cranford P. Walker*, 91 L. Ed. 3, at 9, 10 (1946).
- ^{xix} 277 U. S. 245; 72 L. Ed. 868 (1928).
- ^{xx} *Halliburton* at 9.
- ^{xxi} *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F. 2d 931, 958 (1987).
- ^{xxii} 35 U. S. C. 112, para. 6.
- ^{xxiii} *Graver* at 608.
- ^{xxiv} *Graver* at 609.
- ^{xxv} *Pennwalt* at 938.
- ^{xxvi} *Warner-Jenkinson Co.*, at 1049.
- ^{xxvii} *Pioneer Magnetics* at page 9.
- ^{xxviii} *Litton* at page 10.
- ^{xxix} 717 F. 2d. 1351; 219 USPQ 473 (Fed. Cir. 1983).
- ^{xxx} *Graver* at 607.